From glowbugs@devp214.theporch.com Thu Feb 13 17:10:30 1997
Return-Path: <glowbugs@devp214.theporch.com>
Received: from devp214.theporch.com (devp214.theporch.com [192.150.244.22])
          by uro.theporch.com (8.8.5/AUX-3.1.1)
          with ESMTP id RAA08861 for <shimshon@theporch.com>;
          Thu, 13 Feb 1997 17:10:28 -0600 (CST)
From: glowbugs@devp214.theporch.com
Received: from devp214.theporch.com (localhost [127.0.0.1])
          by devp214.theporch.com (8.8.4/SCO-5.0.2) with SMTP
       id XAA01206; Thu, 13 Feb 1997 23:09:52 GMT
Date: Thu, 13 Feb 1997 23:09:52 GMT
Message-Id: <199702132309.XAA01206@devp214.theporch.com>
Errors-To: ws4s@infoave.net
Reply-To: glowbugs@devp214.theporch.com
Originator: glowbugs@devp214.theporch.com
Sender: glowbugs@devp214.theporch.com
Precedence: bulk
To: Multiple recipients of list <glowbugs@devp214.theporch.com>
Subject: GLOWBUGS digest 445
X-Listprocessor-Version: 6.0 -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: O

GLOWBUGS Digest 445

Topics covered in this issue include:

Date: Wed, 12 Feb 1997 12:23:09 -0500 (EST)
From: rdkeys@csemail.cropsci.ncsu.edu
To: boatanchors@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: Synthesizers are fine if toobie based!
Message-ID: <9702121723.AA152034@csemail.cropsci.ncsu.edu>

Withe the fine talke, it be, abouts synthesizers fer a'boatanchorin'

an' a'glowbuggin', I wouldst offer that a fine way to do it would be with a warm glowing vacuum tube synthesizer. They be scarce as the giant squid, but are about, and the design can be done with about 70 vacuum tubes to give frequency coverage from 300khz to 26mhz and beyond with 10 hz resolution. My guess is that it could be done with about 40-50 tubes of single function types or maybe 25 dual function types, all based upon a stable 100khz reference oscillator. If one narrowed it down to only covering one select set of frequencies, say in the range of 3500-3600khz, and used the transmitter to run up from that, it might be much simpler. One could even run the 5.0-5.5 mhz oscillator thing that way too. It would be even simpler if all you needed was kilocycle resolution. One could take the 100khz oscillator and generate harmonics for injection at any particular 100khz or 1 mhz setting, then divide the 100khz, as was done in the old days of HP counters down to 10khz and multiply up to get 10khz mixer injection frequencies, and then with a single set of 10 tuned coils at some range of frequencies, say at 90-100 khz in incremental steps, use those for the final kilocycle mixer products. Combine all those together in appropriate mixers and you have a direct synthesizer using vacuum tubes. Yeah, I know, it is a big job, but Federal did it for the Navy back in early 1950's, and it worked pretty well. It only weighs in at only about 175 pounds. Food for thought.....(:+}}.....73/ZUT DE NA4G/Bob UP.

Date: Thu, 13 Feb 1997 09:04:43 -0700
From: jeffd@coriolis.com (Jeff Duntemann)
To: glowbugs@theporch.com
Subject: One tube--two frequencies
Message-ID: <3.0.32.19970213085726.009e09d0@165.247.88.2>

Hi gang--

First of all, the Porch wasn't the only one having problems last week; my whole server operation was down for five days and change while we moved to larger quarters, and mail (I get 50+ messages per day) was bouncing all over the place. So if anyone tried to email me this past week and got the note back, it didn't mean we went belly up or fled to Australia. Do try again.

Today's question may be a non-question; I'm just not a EE and sometimes things that sound reasonable (like using an audio output transformer or even a filament transformer as a modulation transformer) turn out to have hidden gotchas.

So. I've been tinkering with a lowband superhet receiver project, and I

want to have both a BFO (obviously) and a crystal calibrator. Is there anything dicey about having one section of a dual triode be the BFO and the other section the crystal calibrator? Will the two signals (basically 455kc and 100kc) mix inadvertently and cause birdies? Would it be cleaner to use two tubes? Anybody ever tried this?

--73--

--Jeff Duntemann KG7JF
  Editor in Chief
  Coriolis Group Books & Visual Developer Magazine

  NEW ADDRESS!!!
  14455 N. Hayden Road, Suite 220
  Scottsdale, AZ 85260
  UPDATE YOUR DATABASE!!! (Phones did not change)

Date: Thu, 13 Feb 1997 10:46:09 -0600 (CST)
From: mjsilva@ix.netcom.com (michael silva)
To: glowbugs@theporch.com
Subject: Re: One tube--two frequencies
Message-ID: <199702131646.KAA29025@dfw-ix1.ix.netcom.com>

Jeff wrote:

>So. I've been tinkering with a lowband superhet receiver project, and
>I want to have both a BFO (obviously) and a crystal calibrator. Is
>there anything dicey about having one section of a dual triode be the
>BFO and the other section the crystal calibrator? Will the two
>signals (basically 455kc and 100kc) mix inadvertently and cause
>birdies? Would it be cleaner to use two tubes? Anybody ever tried
>this?

Yes, I'd expect there to be some mixing, but considering the way you would use the calibrator (turn it on, go to the place on the dial you'd expect to find the signal and find it, then turn it off) I don't see that any birdies 10 or 25 or 60 kHz away will be a problem. If both oscillators were running continuously as you tuned the band it would be another matter. The chances of a birdie one or two kHz away from the proper signal and of equivalent strength (and hence causing confusion) seem pretty remote to me, so I'd go ahead and do it.

73,
Mike, KK6GM

Date: Thu, 13 Feb 97 10:56:34 cst
From: mack@mails.imed.com
To: glowbugs@devp214.theporch.com
Subject: Re: One tube--two frequencies
Message-ID: <9701138558.AA855859994@mails.imed.com>

Jeff:
        The HR-10B receiver from Heath is a good example of one of the gotchas. The last IF and the BFO are a 6U8A or similar tube. There is enough coupling between the plate of the BFO and the plate circuit of the last IF that there is no other coupling used! I am guessing that the plate of the BFO (triode section) is *not* grounded, but the schematics are at home. I can't imagine getting enough injection if the triode plate was grounded as in a Hartley oscillator. I'll check the schematic tonight.

Ray Mack
WD5IFS
mack@mails.imed.com
Friendswood (Houston), TX

_____ Reply Separator _____
Subject: One tube--two frequencies
Author: jeffd@coriolis.com at mails
Date: 2/13/97 10:07 AM

<snip>
So. I've been tinkering with a lowband superhet receiver project, and I want to have both a BFO (obviously) and a crystal calibrator. Is there anything dicey about having one section of a dual triode be the BFO and the other section the crystal calibrator? Will the two signals (basically 455kc and 100kc) mix inadvertently and cause birdies? Would it be cleaner to use two tubes? Anybody ever tried this?

--73--

  --Jeff Duntemann KG7JF

Date: Thu, 13 Feb 1997 12:22:46 -0700 (MST)
From: Chris Trask <ctrask@primenet.com>

To: Jeff Duntemann <jeffd@coriolis.com>
Subject: Re: One tube--two frequencies
Message-ID: <Pine.BSI.3.95.970213121701.20175A-100000@usr08.primenet.com>

On Thu, 13 Feb 1997, Jeff Duntemann wrote:

> I've been tinkering with a lowband superhet receiver project, and I
> want to have both a BFO (obviously) and a crystal calibrator. Is there
> anything dicey about having one section of a dual triode be the BFO and the
> other section the crystal calibrator? Will the two signals (basically
> 455kc and 100kc) mix inadvertently and cause birdies? Would it be cleaner
> to use two tubes? Anybody ever tried this?
>

I would advise against using the same envelope for two reasons: First, your assumption about inadvertent mixing is a good one. The two functions may, indeed, have some coupling between them. This happens with solid-state as well.

Second, the crystal calibrator is going to be in a different place physically in the receiver, which may lead to stray coupling of the BFO and other signals to the front end of the receiver.

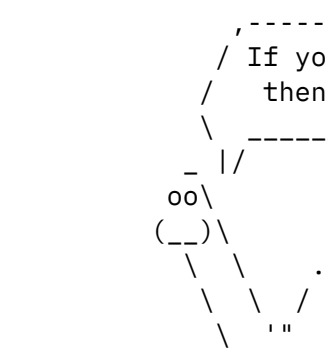
I would certainly start out with two seperate tubes. I once, back in high school (1967-1969) made an 11-tube communications receiver that worked very well except for one, small detail. The LO was always being pulled by strong incoming signals. I was using a 9-pin triode/pentode as the LO and mixer, which was quieter and more linear than a pentagrid.

I ended up adding a 6C4 for the LO, and everything went well from that point on.

I gotta go.

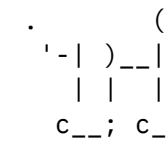
Regards,

Chris



Circuit Design for the
RF Impaired

Chris Trask / N7ZWY
Principal Engineer
ATG Design Services
P.O. Box 25240
Tempe, Arizona 85285-5240



Email: ctrask@primenet.com

Graphics by Loek Frederiks

End of GLOWBUGS Digest 445
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